IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	) Group Art Unit: 3673
ALLIOT	) Examiner: Sunil Singh
Serial No.: 10/507,428	) Confirmation No. 6318
Filed: May 11, 2005	) AMENDED APPEAL BRIEF (37 C.F.R. 41.37)
Atty. File No.: 7096SO-28	) ELECTRONICALLY FILED

For: "SEABED ANCHOR"

Mail Stop Appeal Brief – Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313

Dear Sir:

Appellant submits this Amended Brief in response to the Notification of Non-Compliant Appeal Brief dated April 29, 2008. Although no additional fees are believed due, please charge any underpayment or credit any overpayment to Deposit Account No. 19-1970.

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The sections of this Brief, as specified in 37 C.F.R. §41.37 are as follows:

I. REAL PARTY IN INTEREST (37 C.F.R. §41.37(c)(1)(I)

The real party in interest in this application is the assignee, Acergy France S.A., by change of name from Stolt Offshore S.A as recorded in the U.S. Patent and Trademark Office on February 5, 2008 at Reel No. 020462, Frame No. 0240. An assignment, whereby the inventor assigned all rights in the present application to Stolt Offshore S.A. was recorded in the U.S. Patent and Trademark Office on June 27, 2005 at Reel No. 016191, Frame No.0911. The terms "Appellant" and "Applicant" in this Appeal Brief mean Acergy France S.A., unless otherwise indicated.

II. RELATED APPEALS AND INFERENCES (37 C.F.R. §41.37(c)(1)(II)

There are no related appeals or interferences.

III. STATUS OF THE CLAIMS (37 C.F.R. §41.37(c)(1)(iii)

The status of the claims in this application is as follows:

A. Total Number of Claims: 17

B. Status of Claims:

1. Claims canceled: 2,7,9, and 12-14.

2. Claims withdrawn from consideration but not canceled: none.

3. Claims pending: 1,3-6,8,10,11, and 15-17.

4. Claims allowed: none.

5. Claims rejected: 1,3-6,8,10,11, and 15-17.

C. Claims on Appeal: Claims 1,3-6,8,10,11, 15 and 16. Claim 17 is not appealed since it has not been twice rejected. Claim 17 depends from Claim1.

IV. STATUS OF AMENDMENTS (37 C.F.R. §41.37(c)(1)(iv)

In response to the first Office Action dated June 6, 2006, Claims 1-6, and 8-11 were amended, Claims 7 and 12-14 were cancelled, and Claims 15 and 16 were added. In response to the Final Office Action dated February 26, 2007, Applicant filed an RCE, Claim 1 was further amended, Claim 2 was cancelled, Claim 8 was further amended, claim 9 was cancelled, and Claims 15 and 16 were amended. In response to the Office Action dated July 9, 2007, Claim 8 was further amended and Claim 17 was added. Claims 1,3-6,8,10,11, 15 and 16 have been twice rejected.

V. SUMMARY OF CLAIMED SUBJECT MATTER (37 C.F.R. §41.37(c)(1)(v)

The following is an explanation of the subject matter defined in each of the independent and dependent claims involved in the Appeal, referring to the specification by page and line number, and/or to the drawings by reference characters. It shall be understood that reference to the specification and drawings is in reference to a preferred embodiment of the invention.

1. A seabed anchor (10) (Figure 1) in the form of a caisson (12) having a longitudinal axis (16) and comprising a caisson side wall (14), said side wall surrounding an interior volume and having top (24) and bottom (20) ends and, a top wall (26) substantially closing the interior volume at its upper end, while being provided with a fluid connection (28) to the interior volume (see pages 5-7), to cause fluid to be withdrawn away from an upper part of said interior volume during embedment whereby suction is applied to cause embedment of the anchor in seabed soil, a bottom edge of said side wall defining an open caisson bottom (22) which permits the anchor to be embedded in the seabed soil in a direction generally downwardly along said longitudinal axis by

penetration of said side wall edge into the soil (Figure 3), wherein a lower portion of said interior volume is substantially free of obstruction, and wherein means for retaining seabed soil (30) are provided in an upper portion of said interior volume, said means for retaining seabed soil being adapted to displace, receive and retain a quantity of the seabed soil (Figures 4 and 5), a weight of the seabed soil retained by the means for retaining seabed soil adding to the force required to pull the embedded anchor out of the seabed when the anchor has been emplaced (see page 2, lines 28-32 through page 3, lines 1-4; page 5, lines 15-32; page 6, lines 1-17).

2. Cancelled

3. An anchor as claimed in claim 1, characterized in that said means for retaining seabed soil (30) comprises at least one container having an opening arranged to admit seabed soil during embedment of the anchor in the seabed (page 3, lines 8-9) (Figure 5).

4. An anchor as claimed in claim 1, wherein said means for retaining seabed soil has a downwardly reducing external cross-section to minimize resistance to upward movement of seabed soil past the means for retaining seabed soil during embedment of the anchor (Figures 4 and 5) (page 8, lines. 29-32).

5. An anchor as claimed in claim 4, wherein said means for retaining seabed soil (30) comprises at least one conical hopper, having an apex (32) (Figure 1) oriented to penetrate the soil during embedment (page 3, lines 14-15).

6. An anchor as claimed in claim 1, characterized in that said means for retaining seabed soil is located entirely within the interior volume of the caisson (page 3, lines 19-20).

7. Cancelled.

8. A method of embedding a seabed anchor in a seabed composed of soil, the method comprising the steps of:

(a) providing a seabed anchor (10) (Figure 1) having a caisson side wall (14) surrounding an interior volume, a top wall(26) substantially closing the interior volume at its upper end, and a fluid connection (28) disposed on the top wall (26) and communicating with the interior volume, and a pump (200) (Figure 4) connected to the fluid connection (28) to cause fluid to be withdrawn away from an upper part of said interior volume during embedment, said seabed anchor having an open caisson bottom (22) permitting the anchor to be imbedded in the seabed by contact of a bottom edge (20) of said side wall (14), and said seabed anchor having means for retaining seabed soil (30) disposed in said interior volume (see page 2, lines 28-30 through page 3, lines 1-4; page 5, lines 15-32; page 6, lines 1-17);

(b) deploying the anchor (10) onto the seabed with a longitudinal axis (16) of the anchor aligned substantially in a predetermined direction such that the lower edge (20) of the caisson side wall contacts the seabed soil (Figure 3) (page 3, lines 24-29);

(c) applying forces to the anchor (10) directed generally downwardly along the longitudinal axis (16) of the anchor (10) such as to force the anchor into the seabed

soil such that the sidewall (14) surrounds a quantity of seabed soil (Figure 4), continuing eventually to displace seabed soil into the means for retaining seabed soil (30) retaining means of the anchor (page 3, lines 29-32);

wherein the anchor (10) is embedded in the seabed substantially in said predetermined direction and the weight of seabed soil retained in the means for retaining seabed soil (30) retaining means adds to the force required to pull the embedded anchor out of the seabed soil (Figure 5) (page 4, lines 1-4); and

wherein in step (c) said applied force is generated by applying suction to the interior volume of the anchor (page 4, lines 6-7).

9. Cancelled

10. A method as claimed in claim 8, wherein said predetermined direction is substantially vertical (page 4, line 10).

11. A method as claimed in claim 8, wherein said predetermined direction is partly vertical and partly horizontally directed in a selected bearing such as to embed the anchor into the seabed substantially in a predetermined non-vertical direction that optimizes resistance of the embedded anchor to withdrawal by non-vertical loads (page 4, lines 10-11).

12-14. Cancelled.

15. A gravity base comprising a plurality of seabed anchors (10) (Figure 1), said gravity base comprising:

a plurality of caissons (12), each caisson including:

(i) a sidewall (14) surrounding an interior volume, said sidewall having a bottom edge (20) defining an open caisson bottom (22) that permits the caisson to be embedded in seabed soil, a top wall (26) substantially closing the interior volume at its upper end, a fluid connection (28) located on the top wall and communicating with the interior volume to allow fluid to be withdrawn from an upper part of the interior volume during embedment (page 5, lines 15-32; page 6, lines 1-17);

(ii) means for retaining seabed soil (30) positioned in an upper portion of said interior volume, said means for retaining seabed soil (30) being adapted to receive seabed soil during emplacement (Figure 4) and to retain a quantity of seabed soil after said caisson has been placed (Figure 5), wherein suction is applied to cause embedment of the seabed anchor, and wherein a weight of the seabed soil retained by the means for retaining seabed soil (30) adds to a force required to pull the embedded anchor out of the seabed (page 2, lines 28-32 through page 3, lines 1-4).

16. A method of embedding a gravity base comprising a plurality of seabed anchors (10) (Figure 1) (page 4, lines 15-23), said method comprising the steps of:

providing the plurality of seabed anchors (10), each of said seabed anchors comprising:

a plurality of caissons (12), each caisson including:

(i) a sidewall (14) surrounding an interior volume, said sidewall (14) having a bottom edge (20) defining an open caisson bottom (22) that permits the caisson to be embedded in seabed soil, a top wall (26) substantially closing the

interior volume at its upper end, a fluid connection (28) located on the top wall and communicating with the interior volume to allow fluid to be withdrawn from an upper part of the interior volume during embedment (page 5, lines 15-32; page 6, lines 1-17);

(ii) means for retaining seabed soil (30) positioned in an upper portion of said interior volume, said means for retaining seabed soil being (30) adapted to receive seabed soil during emplacement and to retain a quantity of seabed soil after said caisson has been placed, and wherein a weight of the seabed soil retained by the means for retaining seabed soil (30) adds to a force required to pull the embedded anchor out of the seabed (page 2, lines 28-32 through page 3, lines 1-4).;

deploying the plurality of anchors (10) onto the seabed such that the bottom edges (20) of the caisson sidewalls (14) contact the seabed soil (page 3, lines 24-29);

applying forces including suction forces to the anchor (10) directed generally downward along longitudinal axis (16) of the anchors(10) to force the anchors (10) into the seabed soil such that the sidewalls (14) surround a quantity of seabed soil (Figure 3) (page 3, lines 29-32);

displacing seabed soil into the means for retaining seabed soil (30) in each of the anchors (10), wherein the seabed soil rests on upper surfaces of the means for retaining seabed soil (30) (Figure 4) (page 3, lines 29-32); and

increasing respective weights of the anchors(10) by the seabed soil retained in the means for retaining seabed soil (30) such that additional force is required to pull the anchors out of the seabed soil (Figure 5) (page 4, lines 1-4).

17. An anchor as claimed in Claim 1, wherein:

said fluid connection is disposed on the top wall (26) and communicates with the interior volume, and a pump (200) (Figure 4) connected to the fluid connection thereby facilitating the fluid to be withdrawn away from the interior volume (page 8, lines 6-11).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL (37 C.F.R. §41.37(c)(1)(vi)

The issues on appeal are:

A. Whether Claims 1,3-6,8,10,and 11 should be rejected under 35 U.S.C. §102(b) as being anticipated by Haynes (US 4,234,046)(hereinafter Haynes '046).

B. Whether Claims 15 and 16 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Haynes '046 in view of Haynes (US 4,257,721)(hereinafter Haynes '721).

VII. ARGUMENT (37 C.F.R. §41.37(c)(1)(vii)

A. General:

To establish a prima facie case of obviousness under 35 U.S.C. §103(a), the Examiner must show that: (1) the references teach all of the elements of the claimed invention, (2) the references contain some teaching, suggestion or motivation to combine the references, and (3) the references suggest a reasonable expectation of success. See MPEP §2142. See also In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); In re Kotzab, 217 F.3d 1365, 55 USPQ2d 1313 (Fed. Cir. 2000).

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of

persons of ordinary skill in the art." In re Rouffet, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680, (Fed Cir. 1990) See also MPEP Section 2143.01 (III).

A statement that modifications of the prior art to meet the claimed invention would have been within the ordinary skill of the art at the time the claimed invention was made because the references relied upon teach that all aspects of the claimed invention were individually known in the art is not sufficient to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references. Ex parte Levengood, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also In re Kotzab, 217 F.3d 1365, 1371 and MPEP Section 2143.01 (IV).

A patent claim may be placed in a means plus function format. In accordance with 35 U.S.C., §112, sixth paragraph, a means plus function limitation fulfills the statutory requirements if the corresponding structure, material or acts are described in the specification, and one skilled in the art could identify the structure, material or acts from that description. See MPEP Section 2181.

In order to make a prima facie case of equivalence wherein a prior art element is deemed to disclose the means plus function limitation, an Examiner must make a showing of at least of one of the following factors: (1) the prior art element performs the identical function specified in the claim in substantially the same way and produces substantially the same results as the corresponding element disclosed in the specification; (2) a person of ordinary skill in the art would have recognized the interchangeability of

the element shown in the prior art for the corresponding element disclosed in the specification; (3) there are insubstantial differences between the prior art element and the corresponding element disclosed in the specification; and (4) the prior art element is a structural equivalent of the corresponding element disclosed in the specification. See MPEP Sections 2183 and 2184.

B. First Ground of Rejection on Appeal: Whether Claims 1,3-6,8,10,and 11 should be rejected under 35 U.S.C. §102(b) as being anticipated by Haynes (US 4,234,046)(hereinafter Haynes '046).

1. First Ground of Rejection on Appeal: Independent Claim 1 Argument:

The Haynes '046 reference discloses a pump arrangement for driving corer sampling tubes into the seabed soil, and then operates in a reverse manner or direction to release the corer sampling tubes once the samples have been obtained. Referring to the Figures in the Haynes '046 reference, a pump unit 12 is disposed below a frame 14 that carries a plurality of corers 17. A hydraulic system 28 is used to provide hydraulic power to a piston 26/40 that moves in a reciprocating manner to either bury the pump unit into the seabed soil, or to remove the pump unit once the corers have obtained their core samples. Referring to Figure 2 of the Haynes '046 reference, two sets or pairs of check valves are provided, namely check valves 44 and 46 and 48 and 50. When the pump unit is to be buried in the seabed soil, water and sediment in cavity 54 are squeezed through check valve 44 into cavity 61 where excess water and sediment exit through the top opening 62. When the corer sampling tubes are to be removed from the sediment, check valves 48 and 50 operate in the reverse direction so that sediment is pumped into cavity 42. A surface vessel tensioning cable 19 is secured to an upper end of the frame 14. The

opening 62 at the top of the pump housing is smaller in diameter than the cylindrical housing 22 so that the corer carrier will tend to follow the same path going out of the seafloor that it made while going into the seafloor. It is, therefore, apparent that the purpose of the conical shaped top opening 62 is merely to provide guidance of the pump as it is removed from the seabed floor. The opening 62 is not connected to any other structure of the pump and, based upon the purpose of the opening 62, its guidance function requires that it not be connected to anything else. Claim 1 requires the claimed fluid connection. The Haynes '046 reference clearly has no such connection and the opening 62 cannot be fairly interpreted as such.

Claim 1 further requires a means for retaining seabed soil provided in an upper portion of the interior volume, the means for retaining seabed soil being adapted to displace, receive and retain a quantity of the seabed soil. In the final Office Action of January 23, 2008, the Examiner did not clearly point out which structure corresponded to the means for retaining seabed soil. Here the Examiner stated: "the "means for retaining seabed soil" is considered to be in the upper portion". The Examiner then provided a marked up copy of Figure 2 of the Haynes '046 reference, and the means for retaining seabed soil was designated by a lead line that extended into the gap between the bulkhead 20 and housing 22, and immediately adjacent the check valve 44. This gap is not in the upper portion of the pump of Haynes. The upper portion in Haynes '046 is simply the housing 22 and the large opening 62. Thus, as an initial matter, it is unclear as to which structure in the Haynes reference corresponds to the means for retaining seabed soil. In the preferred embodiment of the present invention, the means for retaining seabed soil includes the cone-shaped hopper 30 that is located at the upper portion of the anchor.

The enclosed space bounded by the bulkhead 20, housing 22, and check valve 44 are elements that, alone or in combination with one another, clearly do not perform the identical functions specified in the claim. This structure in Haynes is not used to retain seabed soil but rather is used to transfer seabed soil from the cavity 42 to the cavity 61. As the piston operates, the check valve meters the water and seabed soil into the cavity 61 so that it may then be simultaneously evacuated through the large opening 62. The bulkhead 20 is simply used as structure to support the mounting of the check valve 44 and piston so the water and seabed soil can is conveyed through the opening 62. Thus, the function of this structure in Haynes '046 is clearly the opposite of what is claimed; this structure in Haynes is not used to retain seabed soil, but rather, to convey seabed soil through the pump unit so that it may be evacuated. There is no teaching or suggestion in Haynes '046 that the soil passing through the pump should be retained in the pump.

This structure in Haynes '046 also does not perform the identical function specified in the claim in substantially the same way to produce the substantially same results. As mentioned, the area surrounding the bulkhead 20, housing 22, and check valve 44 are used to convey the seabed soil, and not to retain the seabed soil in the pump. Even if it can be argued that the temporary positioning of seabed soil in the cavity 61 corresponds to a function for retaining, the structure in Haynes '046 does not produce the same results; in the present invention, the result is that the seabed soil is permanently retained, while in Haynes '046, the seabed soil is immediately evacuated. Even if it is assumed that the structure in Haynes '046 is used to temporarily retain seabed soil, the way in which the soil is retained is very different; in the present invention, the soil is

stationary as it is held in the conical hopper while in Haynes '046, the soil is moving as a result of the operation of the check valve 44.

A person of ordinary skill in the art would not have recognized the interchangeability of the elements in Haynes '046 with the claimed means for retaining. Another way in which to view the structure in Haynes '046 is that it is simply a conveying tube incorporating a piston and a group of check valves used to control the direction of the soil being conveyed. The Haynes reference simply does not contemplate maintaining a quantity of stationary seabed soil within the pump unit.

There are in fact significant differences between the prior art structure shown in Haynes '046 and the corresponding element disclosed in the specification; a cone shaped hopper that retains a quantity of soil is simply not similar to some undefined space within a conveyance tube whose purpose is to convey soil. Finally, the structure in Haynes '046, whether it be the elements 20, 22, and 44 alone or in combination, are simply not structural equivalent(s) to the cone shaped hopper of the present invention.

2. First Ground of Rejection on Appeal: Independent Claim 8 Argument:

Method Claim 8 like Claim 1 requires means for retaining seabed soil. Therefore, for the same reasons as set forth above with respect to Claim 1, the Haynes '046 reference is clearly deficient for disclosing this element.

Independent method Claim 8 has been amended to further require that a pump be connected to the fluid connection located at the top wall to cause fluid to be withdrawn away from an upper part of the interior volume during embedment. For example, in the embodiment of Figure 4, a pump 200 is connected to a fluid connection or connector 28 that therefore allows the pump to withdraw fluid away from the upper part of the interior

volume during embedment. As explained above with respect to Haynes '046 reference, any type of functionality associated with a pump in Haynes relates to the piston 26 that is actually disposed within the cylindrical housing 22. In other words, the pump unit 12 shown in Haynes comprises pump components that are disposed within the cylindrical housing 22 whereas in presently amended Claim 8, a seabed anchor is provided along with an external pump.

The method of Claim 8 also requires that the fluid be withdrawn away from an upper part of the interior volume during embedment, as caused by the pump connected to the fluid connection. In the Haynes reference, since the piston is disposed within the device, the piston does not cause fluid to be withdrawn away from an upper part of the interior volume but rather, forces liquid into the upper part of the interior volume, and it is the presence of opening 62 which allows the fluid to be removed from the device.

C. Second Ground of Rejection on Appeal: Whether Claims 15 and 16 should be rejected under 35 U.S.C. §103(a) as being unpatentable over Haynes '046 in view of Haynes (US 4,257,721)(hereinafter Haynes '721).

1. Second Ground of Rejection on Appeal: Independent Claim 15

Argument:

Independent Claim 15 requires the means for retaining seabed soil. For the same reasons as set forth above with respect to Claim 1, Claim 15 clearly distinguishes over the Haynes '046 reference, and the Haynes 721 reference clearly fails to cure the deficiencies in the Haynes '046 reference.

2. Second Ground of Rejection on Appeal: Independent Claim 16

Argument:

Independent Claim 16 requires means for retaining seabed soil. For the same reasons as set forth above with respect to Claim 1, the Haynes '046 reference is deficient and the Haynes 721 reference clearly fails to cure the deficiencies in the Haynes '046 reference.

VIII CLAIMS APPENDIX (37 C.F.R. §41.37(c)(1)(viii)

Attached at pages A1-A5 is the Claims Appendix listing the claims involved in this appeal, namely, Claims 1,3-6,8,10,11,15 and 16.

IX EVIDENCE APPENDIX (37 C.F.R. §41.37(c)(1)(ix)

None

X RELATED PROCEEDINGS APPENDIX (37 C.F.R. §41.37(c)(1)(x)

None

For the reasons given above, Appellant respectfully submits that Claims 1,3-6,8,10,11,15 and 16 are in a condition for allowance in this application. Claim 17 should also be allowed since it depends from Claim 1.

Respectfully submitted,

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CLAIMS APPENDIX

1. A seabed anchor in the form of a caisson having a longitudinal axis and comprising a caisson side wall, said side wall surrounding an interior volume and having top and bottom ends and, a top wall substantially closing the interior volume at its upper end, while being provided with a fluid connection to the interior volume, to cause fluid to be withdrawn away from an upper part of said interior volume during embedment whereby suction is applied to cause embedment of the anchor in seabed soil, a bottom edge of said side wall defining an open caisson bottom which permits the anchor to be embedded in the seabed soil in a direction generally downwardly along said longitudinal axis by penetration of said side wall edge into the soil, wherein a lower portion of said interior volume is substantially free of obstruction, and wherein means for retaining seabed soil are provided in an upper portion of said interior volume, said means for retaining seabed soil being adapted to displace, receive and retain a quantity of the seabed soil, a weight of the seabed soil retained by the means for retaining seabed soil adding to the force required to pull the embedded anchor out of the seabed when the anchor has been emplaced.

2. Cancelled

3. An anchor as claimed in Claim 1, characterized in that said means for retaining seabed soil comprises at least one container having an opening arranged to admit seabed soil during embedment of the anchor in the seabed.

4. An anchor as claimed in claim 1, wherein said means for retaining seabed soil has a downwardly reducing external cross-section to minimize resistance to upward movement of seabed soil past the means for retaining seabed soil during embedment of the anchor.

5. An anchor as claimed in Claim 4, wherein said means for retaining seabed soil comprises at least one conical hopper, having an apex oriented to penetrate the soil during embedment.

6. An anchor as claimed in Claim 1, characterized in that said means for retaining seabed soil is located entirely within the interior volume of the caisson.

7. Cancelled.

8. A method of embedding a seabed anchor in a seabed composed of soil, the method comprising the steps of:

(a) providing a seabed anchor having a caisson side wall surrounding an interior volume, a top wall substantially closing the interior volume at its upper end, and a fluid connection disposed on the top wall and communicating with the interior volume, and a pump connected to the fluid connection to cause fluid to be withdrawn away from an upper part of said interior volume during embedment, said seabed anchor having an open caisson bottom permitting the anchor to be imbedded in the seabed by contact of a bottom edge of said side wall, and said seabed anchor having means for retaining seabed soil disposed in said interior volume;

(b) deploying the anchor onto the seabed with a longitudinal axis of the anchor aligned substantially in a predetermined direction such that the lower edge of the caisson side wall contacts the seabed soil;

(c) applying forces to the anchor directed generally downwardly along the longitudinal axis of the anchor such as to force the anchor into the seabed soil such that the side wall surrounds a quantity of seabed soil, continuing eventually to displace seabed soil into the means for retaining seabed soil retaining means of the anchor;

wherein the anchor is embedded in the seabed substantially in said predetermined direction and the weight of seabed soil retained in the means for retaining seabed soil retaining means adds to the force required to pull the embedded anchor out of the seabed soil; and

wherein in step (c) said applied force is generated by applying suction to the interior volume of the anchor.

9. Cancelled

10. A method as claimed in Claim 8, wherein said predetermined direction is substantially vertical.

11. A method as claimed in Claim 8, wherein said predetermined direction is partly vertical and partly horizontally directed in a selected bearing such as to embed the anchor into the seabed substantially in a predetermined non-vertical direction that optimizes resistance of the embedded anchor to withdrawal by non-vertical loads.

12-14. Cancelled.

15. A gravity base comprising a plurality of seabed anchors, said gravity base comprising:

a plurality of caissons, each caisson including:

(i) a sidewall surrounding an interior volume, said sidewall having a bottom edge defining an open caisson bottom that permits the caisson to be embedded in seabed soil, a top wall substantially closing the interior volume at its upper end, a fluid connection located on the top wall and communicating with the interior volume to allow fluid to be withdrawn from an upper part of the interior volume during embedment;

(ii) means for retaining seabed soil positioned in an upper portion of said interior volume, said means for retaining seabed soil being adapted to receive seabed soil during emplacement and to retain a quantity of seabed soil after said caisson has been placed, wherein suction is applied to cause embedment of the seabed anchor, and wherein a weight of the seabed soil retained by the means for retaining seabed soil adds to a force required to pull the embedded anchor out of the seabed.

16. A method of embedding a gravity base comprising a plurality of seabed anchors, said method comprising the steps of:

providing the plurality of seabed anchors, each of said seabed anchors comprising:

a plurality of caissons, each caisson including:

(i) a sidewall surrounding an interior volume, said sidewall having a bottom edge defining an open caisson bottom that permits the caisson to be embedded in seabed soil, a top wall substantially closing the interior volume at its upper end, a fluid connection located on the top wall and communicating with the interior volume to allow fluid to be withdrawn from an upper part of the interior volume during embedment;

(ii) means for retaining seabed soil positioned in an upper portion of said interior volume, said means for retaining seabed soil being adapted to receive seabed soil during emplacement and to retain a quantity of seabed soil after said caisson has been placed, and wherein a weight of the seabed soil retained by the means for retaining seabed soil adds to a force required to pull the embedded anchor out of the seabed;

deploying the plurality of anchors onto the seabed such that the bottom edges of the caisson sidewalls contact the seabed soil;

applying forces including suction forces to the anchors directed generally downward along longitudinal axis of the anchors to force the anchors into the seabed soil such that the sidewalls surround a quantity of seabed soil;

displacing seabed soil into the means for retaining seabed soil in each of the anchors, wherein the seabed soil rests on upper surfaces of the means for retaining seabed soil; and

increasing respective weights of the anchors by the seabed soil retained in the means for retaining seabed soil such that additional force is required to pull the anchors out of the seabed soil.